

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
TYLER DIVISION**

**THE PACID GROUP, LLC**

**Plaintiff,**

**v.**

**APPLE, INC., et al.,**

**Defendants.**

**Civil Action No. 6:09-cv-143-LED-JDL**

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**THE PACID GROUP LLC'S OPPOSITION TO DEFENDANTS' MOTION FOR  
SUMMARY JUDGMENT OF INDEFINITENESS**

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## TABLE OF CONTENTS

I. INTRODUCTION .....	1
II. STATEMENT OF ISSUES .....	2
III. STATEMENT OF GENUINE ISSUES OF MATERIAL FACT.....	3
IV. SUMMARY JUDGMENT OF INDEFINITENESS IS INAPPROPRIATE, AND THE COURT SHOULD CONSTRUE THE TERM “INTERRUPT CONTROL” CONSISTENT WITH THE ORDINARY MEANING AS UNDERSTOOD BY ONE OF ORDINARY SKILL IN THE ART.....	7
A. “Interrupt Control Means In Electrical Communication With Said I/O Interface Means For Issuing an Interrupt Signal Upon Receipt of Said Command Sequences” Is Not Governed By 35 U.S.C. §112, ¶ 6 Because Claim 12 Recites an Interrupt Control, which is Sufficient Structure to Rebut the Presumption That 35 U.S.C. §112, ¶ 6 Applies.....	8
B. Even if “Interrupt Control Means” Is Construed As a Means-Plus-Function Limitation, the Claims Including That Term Are Not Indefinite Because the Specification Clearly Links A Structure – The “Interrupt Control Unit 104” – To The Recited Function.....	9
1. It Is Undisputed That the Specification Clearly Links the “Interrupt Control Unit 104” to the Recited Function.....	10
2. The “Interrupt Control Unit” Is Structure. ....	10
3. Defendants’ Argument That the “Interrupt Control Unit” Is Not Structure Is Contrary To the Law. ....	14
C. The Court Should Construe “Interrupt Control Means in Electrical Communication with Said I/O Interface Means for Issuing an Interrupt Signal Upon Receipt of Said Command Sequences” To Have Its Ordinary Meaning, or Alternatively To Mean “Hardware or Software That Issues a Signal To Interrupt the Operation of a Processor.” .....	17
V. CONCLUSION.....	17

# **TABLE OF AUTHORITIES**

## **Cases**

*Atmel Corp. v. Information Storage Devices, Inc.*

198 F.3d 1374 (Fed. Cir. 1999).....7, 9

*B. Braun Med., Inc. v. Abbott Lab.*

124 F.3d 1419 (Fed. Cir. 1997).....9

*Budde v. Harley-Davidson, Inc.*

250 F.3d 1369 (Fed. Cir. 2001).....7

*Encyclopaedia Britannica, Inc. v. Alpine Elecs. of Am., Inc.*

2008 U.S. Dist. LEXIS 111989 (W.D. Tex. Sept. 30, 2008)..... 15

*In re Ghiron*

442 F.2d 985 (C.C.P.A. 1971) ..... 16

*Intel Corp. v. VIA Technologies, Inc.*

319 F.3d 1357 (Fed. Cir. 2003)..... 9, 14, 15, 16

*Med. Instrumentation & Diagnostics Corp. v. Elekta AB*

344 F.3d 1205 (Fed. Cir. 2003)..... 15

*S3, Inc. v. NVIDIA Corp.*

259 F.3d 1364 (Fed. Cir. 2001)..... 10

## I. INTRODUCTION

Plaintiff The PACid Group, LLC (“PACid”) opposes the motion for summary judgment that claims 12 and 26 of United States Patent No. 5,963,646 to Guy Fielder and Paul Alito (“Fielder ’646 patent”) are invalid due to indefiniteness by Defendants Atheros Communications, Inc., Broadcom Corporation, Intel Corporation, and Marvell Semiconductor, Inc. (collectively, “Defendants”). The Fielder ’646 patent relates to a system of encryption, and applications thereof, that provide a way to secure the contents of communications in a manner that is highly resistant to attempts to decipher the encoded communications, which include internet financial communications and electronic commerce. See ‘646 patent, 3:18-40. Claims 12 and 26 are not invalid for indefiniteness because claim 12 both (1) recites sufficient structure in the claim itself (“interrupt control”) so that the challenged claim limitation is not a means-plus-function limitation under 35 U.S.C. §112, ¶ 6; and (2) the specification recites clear structure (“interrupt control unit 104”) and explicitly associates that structure with the recited function.

First, one of ordinary skill in the art understands that the term “interrupt control” refers to structure. Numerous documents and the declaration of Cyrus D. Cantrell, Ph.D., P.E. (“Dr. Cantrell Decl.”) supports this. Dr. Cantrell Decl., ¶¶ 5, 12. In addition, the use of the term “said interrupt control” in claim 12 indicates that the initial use of the word “means” in conjunction with “interrupt control” was incidental. This claim term is not governed by 35 U.S.C. §112, ¶ 6.

Second, the specification recites structure that corresponds to the recited function. There is no plausible dispute that the disclosed structure of the “interrupt control unit” is linked to the recited function of the claim term “interrupt control means.” *Id.*, ¶¶ 10, 13. The recited function is “issuing an interrupt signal upon receipt of said command sequences.” The specification explicitly states that the “interrupt control unit 104” is the structure that performs that function:

In operation, a host system . . . inputs commands and data to the key generator system . . . . When information from the host system is written into the I/O interface unit 102, ***an interrupt is generated by the interrupt control unit 104.***

Fielder ’646 patent (Dr. Cantrell Decl., Exhibit 3), 6:63-7:1.

Defendants' argument focuses on whether the disclosure is sufficiently detailed to be structure, but the "interrupt control unit 104" is undoubtedly sufficient structure in the context of the patent. The specification states that the "Interrupt control unit 104 is electrically connected to an 8 bit, 4.0 MHz CPU" and that the I/O interface unit 102 "is electrically connected by way of a conducting line 103 to an interrupt control unit 104 . . ." The interrupt control unit 104 is shown in Figure 3, which shows a block diagram of a system. Each block depicted in Figure 3 is undisputably structure: CPU; I/O Interface Unit; EEPROM; RAM; ROM and the "Interrupt Control Unit 104." The Fielder '646 patent relates to a novel encryption system, using digital system-level application design, including the interconnection of standard electronic components, e.g., CPU, interrupt control unit, and I/O interface. Dr. Cantrell Decl., ¶¶ 3-4. Further detail of the interrupt control is unnecessary to implement claim 12. *Id.*, ¶¶ 7-8. One of skill in the art would understand that the "interrupt control" and especially the "interrupt control unit 104" is structure. *Id.*, ¶¶ 5, 10, 13.

Because Defendants have not and cannot produce clear and convincing evidence that one of skill in the art would not understand that the structure described in the specification is sufficient to perform the recited function of issuing an interrupt signal upon receipt of commands, the Court should deny Defendants' motion.

## **II. STATEMENT OF ISSUES**

1. Is an "interrupt control" sufficient structure to overcome the presumption that "interrupt control means in electrical communication with said I/O interface means for issuing an interrupt signal upon receipt of said command sequences"<sup>1</sup> is a means-plus-function limitation governed by 35 U.S.C. §112, ¶ 6?

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<sup>1</sup> Defendants and Defendants' declarant, Dr. Melvin Ray Mercer, selectively quote the full relevant limitation, omitting "in electrical communication with said I/O interface means." As discussed further later, this language provides context to how the interrupt control structure is interconnected with the other structural elements of the system.

2. Would one of ordinary skill in the art understand the specification to sufficiently disclose structure for performing the recited function where: (1) the recited function is issuing an interrupt signal upon receiving commands; and (2) the specification discloses an “interrupt control unit 104” that issues an interrupt signal upon receiving commands from the I/O interface?

3. Would one of ordinary skill in the art understand that the “interrupt control unit 104” is structure, where the specification explains that (1) the interrupt control unit 104 is “electrically connected by way of a conducting line” to the I/O interface; (2) the interrupt control unit 104 is “electrically connected to” the CPU; and (3) the “interrupt control unit 104” is depicted in Figure 3, which shows a block diagram of the system that includes only structural elements, including: CPU, I/O Interface, EEPROM, RAM, and ROM?

### **III. STATEMENT OF GENUINE ISSUES OF MATERIAL FACT**

Defendants’ so-called “Statement of Undisputed Material Facts” includes numerous errors, argument, and genuine issues of material fact that preclude summary judgment. For example:

1. Regarding ¶ 4 in Defendants’ “Statement,” the references to interrupt control in the Fielder ’646 patent are not intermittent. In fact, the Fielder ’646 patent describes interrupt control unit 104 in three consecutive paragraphs of the specification, among other places.

2. Regarding ¶ 5, PACid disputes that the Fielder ’646 patent has “only passing reference” to interrupt control 104. In fact, the Fielder ’646 patent describes interrupt control unit 104 in relevant detail. For example, the Fielder ’646 patent describes the interrupt control unit as hardware that is electrically connected between an I/O interface and a CPU. *See, e.g., id.*, Figure 3, 6:46-51.

3. Regarding ¶ 6, PACid disputes that the Fielder ’646 patent makes no other mention of interrupt control or to interrupt control/interrupt control unit 104 other than in figure

3 and at col. 6:43-7:6. In fact, the Fielder '646 patent also describes the interrupt control unit 104 further in relation to figure 6:

Referring to FIG. 6, upon the CPU 107 of FIG. 3 being interrupted by the interrupt control unit 104, the CPU exits a wait-state and enters logic step 150 of FIG. 6 to commence the process of generating an encryption key.

Fielder '646 patent, 8:3-6. In addition, the Fielder '646 patent describes a preferred embodiment of the system in figure 3, which includes the interrupt control, as Motorola part number MC68HC05SC28. *Id.*, 7:22-29. Also, claim 12 further describes the interrupt control in relation to a CPU: “a CPU in electrical communication with said interrupt control.” *Id.*, 10:4-5.

4. Regarding the second ¶ 7 (starting on the penultimate line of page 3), PACid disputes whether “the relevant field is the field of logic design for computer systems, including interfacing with asynchronous interrupt requests” for claims 12 and 26. The relevant field of claims 12 and 26 is the field of electronic system design, including interconnection of standard electronic components, e.g., an I/O interface, a ROM, a RAM, an EEPROM, and a CPU, and programming the CPU to execute programs and algorithms. Declaration of Dr. Cyrus D. Cantrell (“Dr. Cantrell Decl.”), ¶ 4. In addition, PACid disputes the appropriate level of skill for one of ordinary skill in the art as of the effective filing date of the application for the Fielder '646 patent. The appropriate level of ordinary skill in the art for the Fielder '646 patent is a Bachelor of Science degree in electrical engineering or computer science and one to three years of experience in the field of electronic system design. *Id.* Support for this as the proper level of ordinary skill in the art includes the content and context of the Fielder '646 patent and the fact that inventor Guy Fielder had a B.S.E.E. and several years of industry experience by the time he invented the Fielder '646 patent with Paul Alito. *Id.*

5. Regarding ¶ 9, the words “interrupt control” and “interrupt control unit” are understood by those of ordinary skill in the art to refer to structure. Dr. Cantrell Decl., ¶ 5. For example, numerous documents refer specifically to “interrupt control,” “interrupt controller,” and “programmable interrupt controller” in the form of an integrated circuit. See, e.g., Declaration of M. Ray Mercer, Ph.D. (attached as Exhibit 4 to the Dr. Cantrell Decl.), Ex. C-3

(M68HC05SC Technical Summary: 8-bit microcontroller family with security features), figure 1, “Interrupt control”; *id.*, Ex. C-4 (M68HC05SC28 Product Preview: Secure 8-bit microcomputer with EEPROM (1993)), MC68HC05SC28 block diagram, “Interrupt control”; MC68HC05 Applications Guide, pp. 134-38, 268-314 (Rev. 3 1996) (Dr. Cantrell Decl., Exhibit 5); Motorola Semiconductors, “Priority Interrupt Controller” MC6828/MC8507 (1981) (Dr. Cantrell Decl., Exhibit 6); Intel iAPX 86,88 User’s Manual, pp. 2-22 to 2-29 (August 1981) (Dr. Cantrell Decl., Exhibit 7); Intel, 8259A “Programmable Interrupt Controller” (1988) (Dr. Cantrell Decl., Exhibit 8); Intel 82093AA I/O Advanced Programmable Interrupt Controller (I/O APIC) (2001) (Dr. Cantrell Decl., Exhibit 9). One of ordinary skill in the art in the mid-1990s would have understood these three terms to refer to the same structure of an interrupt controller. Dr. Cantrell Decl., ¶ 5. For example, the first two references cited above describe the MC68HC05 integrated circuit, and both have block diagrams including a structure labeled “Interrupt control.” One of ordinary skill in the art would typically have consulted this type of datasheet to learn about the integrated circuit and the use of the term “Interrupt control” in the datasheet is substantial evidence that one of ordinary skill in the art would have understood the term “Interrupt control.” *Id.* As a further example, the last three references describe integrated circuits that are called “Interrupt Controllers.” These documents indicate that interrupt controllers were well known in the art at the time of the filing of the application for the Fielder ’646 patent. *Id.*

6. Regarding ¶¶ 10-11, “level-triggered” and “edge-triggered” interrupts were two standard types of interrupts, which were well known to those of ordinary skill in the art in the mid-1990s. See, e.g., Dr. Cantrell Decl., ¶ 7. This level of detail is unnecessary to implement the invention of claim 12 in the Fielder ’646 patent. One of ordinary skill in the art would have simply used a standard, commercially available interrupt controller like the Intel 8259 or Motorola 6828. *Id.*

7. Regarding ¶ 12, the level of detail described as necessary is inconsistent with the context of the invention in claim 12 of the Fielder ’646 patent. Interrupt control units, including



the one incorporated in the disclosed Motorola part MC68HC05SC28, were commercially available and known to those of ordinary skill in the art at the time of the application for the Fielder '646 patent. Accordingly, one of ordinary skill in the art would not need to evaluate “myriad possible techniques” for solving the problem of interrupt control; instead, one of ordinary skill in the art would have understood the described “interrupt control” as referring to one of several well-known interrupt controllers. Dr. Cantrell Decl., ¶ 8.

8. Regarding ¶ 13, one of ordinary skill in the art would understand the Fielder '646 patent to disclose structure that performs the function of “issuing an interrupt signal upon receipt of said command sequences” and would be able to implement that limitation. Dr. Cantrell Decl., ¶ 9.

9. Regarding ¶ 14, one of ordinary skill in the art would understand the Fielder '646 patent to disclose sufficient structure corresponding to the limitation “interrupt control means in electrical communication with said I/O interface means for issuing an interrupt signal upon receipt of said command sequences.” For example, the Fielder '646 patent discloses that the interrupt control includes hardware (interrupt control unit 104) and how that hardware structure is incorporated within the claimed system. Dr. Cantrell Decl., ¶¶ 5-6. The context of the patent is a component level encryption system and does not involve the granularity of the digital logic of the interrupt control unit. The Fielder '646 patent fully discloses the corresponding structure(s) of the “interrupt control means” limitation in the written description in such a manner that one skilled in the art will know and understand what structure corresponds to the means limitation and thus understand the claim’s scope and meaning. Dr. Cantrell Decl., ¶ 10.

10. Regarding ¶ 15, one of ordinary skill in the art would have understood that the disclosed MC68HC05SC28 integrated circuit was a controller that included an embodiment of the interrupt control unit of claim 12. Additional materials describing the details of the MC68HC05SC28 would have been unnecessary, but were publicly available and within the knowledge of persons of ordinary skill in the art. The statement that “[t]hese references do not teach any of the Motorola chip’s internal structure for interrupt control” is incorrect. For

example, the document entitled “M68HC05SC Technical Summary: 8-bit microcontroller family with security features” expressly describes the use of an interrupt flip-flip “INTFF flip-flop” and related “interrupt request latch.” Mercer Decl., Ex. C-3, at 7. These are elements of the Motorola chip’s internal hardware structure for interrupt control. Dr. Cantrell Decl., ¶ 11.

**IV. SUMMARY JUDGMENT OF INDEFINITENESS IS INAPPROPRIATE, AND THE COURT SHOULD CONSTRUE THE TERM “INTERRUPT CONTROL” CONSISTENT WITH THE ORDINARY MEANING AS UNDERSTOOD BY ONE OF ORDINARY SKILL IN THE ART.**

Summary judgment of indefiniteness is inappropriate because the claim limitation “interrupt control means in electrical communication with said I/O interface means for issuing an interrupt signal upon receipt of said command sequences” recites sufficient structure to perform the claimed function and the presumption that 35 U.S.C. §112, ¶ 6 applies collapses.

If 35 U.S.C. §112, ¶ 6 applies to this limitation, the Court must apply a two-step inquiry. “[T]he inquiry asks first whether structure *is* described in specification, and, if so, whether one skilled in the art would identify the structure from that description.” *Atmel Corp. v. Information Storage Devices, Inc.*, 198 F.3d 1374, 1379 (Fed. Cir. 1999). In this case, it is undisputed that the specification describes structure corresponding to the “interrupt control means.” In addition, the specification discloses sufficient structure to support the interrupt control means limitation and link it to the recited function based on the understanding of one skilled in the art.

“For a court to hold that a claim containing a means-plus-function limitation lacks a disclosure of structure in the patent specification that performs the claimed function, necessarily means that the court finds the claim in question indefinite, and thus invalid. Because the claims of a patent are afforded a statutory presumption of validity, overcoming the presumption of validity requires that any facts supporting a holding of invalidity must be proved by clear and convincing evidence.” *Budde v. Harley-Davidson, Inc.*, 250 F.3d 1369, 1376 (Fed. Cir. 2001). “Thus, a challenge to a claim containing a means-plus-function limitation as lacking structural support requires a finding, by clear and convincing evidence, that the specification lacks disclosure of structure sufficient to be understood by one skilled in the art as being adequate to

perform the recited function.” *Id.* at 1376-77.

**A. “Interrupt Control Means In Electrical Communication With Said I/O Interface Means For Issuing an Interrupt Signal Upon Receipt of Said Command Sequences” Is Not Governed By 35 U.S.C. §112, ¶ 6 Because Claim 12 Recites an Interrupt Control, which is Sufficient Structure to Rebut the Presumption That 35 U.S.C. §112, ¶ 6 Applies.**

First, as a preliminary matter, Claim 12 should not be considered a means-plus-function claim because it recites sufficient structure to rebut the presumption that the means-plus-function analysis of 35 U.S.C. §112, ¶ 6 applies. Claim 12 recites an “interrupt control.” An “interrupt control” is itself structure that was readily known to one of skill in the art and commercially available at the time of the application for the Fielder ’646 patent. As averred by Dr. Cantrell, one of skill in the art knew at the time what an “interrupt control” is, and that it included well-known types of hardware, including commercially available “interrupt controls.” Dr. Cantrell Decl., ¶ 5.

Moreover, the claim itself subsequently refers back to “said interrupt control” (not “said interrupt control means”) -- a clear reference to the antecedent “interrupt control means” but referring only to “interrupt control” and omitting the word “means.” Defendants have raised no argument that the use of “interrupt control” in this portion of claim 12 is indefinite or even that it requires construction. This provides strong evidence that the applicant was referring to the interrupt control as a structure and did not intend to invoke Section 112, ¶ 6.

Applicant’s use of “means” in “interrupt control means” without the intent to invoke Section 112, ¶ 6 is consistent with other uses of “means” that undisputably did not invoke Section 112, ¶ 6. For example, the claim phrase “in electrical communication with said I/O interface means” uses the term “I/O interface means,” which neither side contends should be construed under 35 U.S.C. §112, ¶ 6. This further supports that the patentee used the term “means” only incidentally and consistently did not invoke the means-plus-function convention of 35 U.S.C. §112, ¶ 6 for either “interrupt control means” or “I/O interface means.”

Thus, because claim 12 recites “interrupt control,” and because one of skill would recognize that as structure, “interrupt control means” should not be construed as a means-plus-

function claim. However, as described below, even if the claim is governed by Section 112, ¶ 6, the claim is valid because the specification clearly discloses structure (“interrupt control unit 104”), and undisputably clearly links that structure to the recited function.

**B. Even if “Interrupt Control Means” Is Construed As a Means-Plus-Function Limitation, the Claims Including That Term Are Not Indefinite Because the Specification Clearly Links A Structure – The “Interrupt Control Unit 104” – To The Recited Function.**

If the Court finds that “interrupt control means” is properly construed as a means-plus-function limitation, the Court must determine whether the specification clearly links a structure with the recited function. *B. Braun Med., Inc. v. Abbott Lab.*, 124 F.3d 1419, 1424 (Fed. Cir. 1997) (holding that the “structure disclosed in the specification is ‘corresponding’ structure only if the specification or prosecution history links or associates that structure to the function recited in the claim”). To comply with Section 112, ¶ 6, the specification must disclose structure and clearly link that structure to the recited function. *Atmel Corp. v. Information Storage Devices, Inc.*, 198 F.3d 1374, 1381-82 (Fed. Cir. 1999). Whether the specification discloses structure and whether it clearly links that structure to the recited function is determined from the viewpoint of one of ordinary skill in the art. *Id.* at 1378-79. Of course, “[a]ny fact critical to a holding on indefiniteness ... must be proven by the challenger by clear and convincing evidence.” *Intel Corp. v. VIA Technologies, Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003).

Notably, and contrary to defendants’ unsupported assertion, a specification discloses structure even if there are multiple possible configurations of that structure, and the selection of a particular configuration would be a matter of design choice unrelated to the novelty of the patent. *Id.* at 1367 (holding that a patent was not indefinite where specification disclosed “core logic” but did not disclose any specific circuitry and the novelty of the invention was in the signal protocol, not in the “circuitry for carrying out the specified protocol”). A patent “is not indefinite merely because no specific circuitry is disclosed to show the modification. There is much supporting precedent.” *Id.* at 1366; *see also S3, Inc. v. NVIDIA Corp.*, 259 F.3d 1364, 1370-71 (Fed. Cir. 2001) (holding that “selector” was a structure “even though neither the

electronic structure of the selector nor details of its electronic operation were described in the specification.”)

Here, the specification clearly links structure – an interrupt control unit 104 – to the recited function. Defendants’ argument that it is not a structure because it does not describe the “precise” structure of the interrupt control unit, or because one of skill in the art would know that various types of interrupt control units would work, is meritless and without support in the law.

**1. It Is Undisputed That the Specification Clearly Links the “Interrupt Control Unit 104” to the Recited Function.**

Here, there is no dispute that the specification clearly links the “interrupt control unit 104” to the recited function. The recited function is “issuing an interrupt signal upon receipt of said command sequences.” The specification clearly and explicitly states that it is the “interrupt control unit 104” that performs the recited function of issuing an interrupt signal upon receiving the commands:

In operation, a host system (not shown) inputs commands and data to the key generator system 100 . . . . When information from the host system is written in to the I/O interface unit 102, *an interrupt is generated by the interrupt control unit 104.*”

Fielder ’646 patent (Dr. Cantrell Decl., Exhibit 3), 6:63-7:1.

Thus, the specification clearly states that it is the “interrupt control unit 104” that issues the interrupt signal upon receiving the command sequences from the host system via the I/O interface. The only question remaining is whether the “interrupt control unit” is structure. As shown below, it certainly is.

**2. The “Interrupt Control Unit” Is Structure.**

The Fielder ’646 patent describes structure corresponding to the “interrupt control means” of claim 12. As disclosed above, the specification expressly discloses that it is the “interrupt control unit 104” that performs the recited function. The interrupt control unit is undoubtedly structure. The specification states that the “Interrupt control unit 104 is electrically connected to an 8 bit, 4.0 MHz CPU” and that the I/O interface unit 102 “is electrically

connected by way of a conducting line 103 to an interrupt control unit 104 . . .” See, e.g., 6:43-7:6 and 8:3-13.

Moreover, the interrupt control unit is depicted in Figure 3, which shows a block diagram of the system and includes the hardware structure of the interrupt control unit interconnected with other structural elements, e.g., CPU, ROM, RAM, EEPROM, I/O Interface Unit, and wires and buses.

One of skill in the art would understand the term “interrupt control” as including hardware, for example, one of the interrupt controllers commercially available at the time. In addition, one of ordinary skill in the art would read the surrounding claim language as reinforcing that “interrupt control” includes hardware and provides further detail of how the interrupt controller interconnects with the other structural elements of the system. Dr. Cantrell Decl., ¶ 6.

Furthermore, the specification describes the interrupt control means as an “interrupt control *unit*,” which provides further context that this structure includes hardware circuitry like the interrupt controllers commercially available and known to those of ordinary skill in the art at the time. *Id.*, ¶ 5.

Even Defendants’ declarant, Dr. Mercer, had to admit that the “interrupt control unit” is hardware and structure:

- Q. (BY MR. GIZA) Okay. So let's look first at Figure 3. The box labeled "Interrupt Control 104," in the context of Figure 3, does that indicate to you that it includes some sort of hardware?
- A. I think that -- yeah, **I think there's some hardware inside that box, and I think that it's connected to some hardware in the CPU, and -- and it's connected to some hardware in the interface unit. I think there's bound to be some hardware there.** I think so. I think there's a -- I can't think of a way that I could put anything in there without, for example, at the very least, wires. Because I know that CPUs get connected with wires, and I know I/O interfaces get connected with wires, and so something inside there has gotta be connected to those wires. When I was a kid, of course, I would have thought it was -- you know, I mean, if you were a kid and you listened to a radio, you thought there were little people in there talking, but not anymore.

Mercer Depo. (Declaration of Alexander C.D. Giza (“Giza Decl.”), Ex. A) at 98:14-99:7.

- Q. Is it your opinion that the 646 patent totally lacks any description of structure corresponding to the interrupt control means?
- A. It's a -- there's a -- there's a box that's called interrupt control. There's some -- there's one or more inputs into that box and there's one or more outputs coming from that box. That structure is not much but that's there. There's no doubt about that.

Mercer Depo. (Giza Decl., Ex. A) at 109:16-23.

- Q. But it's not your opinion that the 646 patent totally lacks sufficient structure corresponding to interrupt control means?

[Objection]

- A. The -- what I've said is that there's a box there called interrupt control and there's one or more lines going in and one or more lines coming out, and there's this teaching that we already looked at in the -- in the -- in the claim itself that says that -- whatever that interrupt control means is, it is in electrical communication with the IO interface means, and ***I think one with skill in the art would look at figure 103 and see this box, interrupt control and this box IO interface unit and that's the structure they'd see.***

Mercer Depo. (Giza Decl., Ex. A) at 110:15-111:4.

Moreover, the specification expressly discloses a specific part that includes the structure of the interrupt control unit: “In the preferred embodiment described herein, the system of FIG. 3 may be purchased as part number MC68HC05SC28 from Motorola Semiconductor Product Sector Headquarters located at 3102 North 56th Street, Phoenix, Ariz. 85018.” 7:23-29. One of ordinary skill in the art at the time would have been familiar with these types of parts, their general use of interrupt controllers, and the public availability of other materials if any further information was needed. Dr. Cantrell Decl., ¶ 5, 11.

In addition, publicly available information and documents available to those of ordinary skill in the art include structure of disclosed Motorola chip that is a preferred embodiment of the system and includes the interrupt control. Although Dr. Mercer’s declaration stated that “[t]hese references do not teach any of the Motorola chip’s internal structure for interrupt control” (Mercer Decl., ¶ 18 (Dr. Cantrell Decl., Exhibit 4)), Dr. Mercer admitted in deposition that the references did include structure for the interrupt control. For example, the document entitled “M68HC05SC Technical Summary: 8-bit microcontroller family with security features” expressly describes the use of an interrupt flip-flop “INTFF flip-flop” and related “interrupt request latch.”

- Q. Is the INTFF flip-flop the structure that implements the hardware interrupt?
- A. I think in this particular case it certainly is part of that structure. I don't think it's the entirety of that structure.
- Q. Yes. Very good. So the next sentence says, "One set, this bit blocks any subsequent negative edges on PA0 affecting the interrupt request latch."
- Is the interrupt request latch another portion of structure that implements the hardware interrupt?
- A. And here, I would have to say I don't know for sure whether I -- because one way that can you build a flip flop is by building a set of latches, often a flip flop is a set of latches like a master latch and a slave latch. So this interrupt request latch may be a completely separate latch or it may, in fact, be the master of the INTFF. It could -- could go either way.
- Q. Either way it would be structure associated with the hardware interrupt?
- A. Either way it would be part of the structure associated with the hardware interrupt, yes.

Mercer Depo. (Giza Decl., Ex. A) at 156:6-157:3. *See also* Mercer Decl. (Dr. Cantrell Decl., Exhibit 4), Ex. C-3, at 7. The interrupt flip-flop and interrupt request latch are elements of the Motorola chip's internal hardware structure for interrupt control. Dr. Cantrell Decl., ¶ 11.

Also, Dr. Cantrell has stated in his declaration that one of ordinary skill in the art could have used the Motorola chip to implement claim 12.<sup>3</sup> Dr. Cantrell's un rebutted testimony strongly supports that the description of structure in the Fielder 646 patent is at least sufficient for one of ordinary skill to understand the scope and meaning of the claim.

Defendants have failed to meet their burden to show clear and convincing evidence that sufficient structure is lacking. The situation is the opposite – there is clear and convincing evidence that the specification recites sufficient structure so that one of ordinary skill in the art can readily ascertain what claim 12 means. The structure is evident from the claims and the specification as understood by one of ordinary skill.

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<sup>3</sup> Defendants' declarant has no opinion on the question. Mercer Depo. at 144:24-145:4 (no opinion as to whether one of ordinary skill in the art, at the time of the patent application, could use the Motorola chip to implement claim 12)



**3. Defendants’ Argument That the “Interrupt Control Unit” Is Not Structure Is Contrary To the Law.**

Defendants’ argument that the disclosure of structure is insufficient is unsupported by the law. Fundamentally, Defendants argue that the specification does not sufficiently recite structure because it does not describe the “precise” structure of the interrupt control unit. Motion at 13. Defendants argue that the specification fails to disclose “even the number of physical inputs to that element.” *Id.* Similarly Dr. Mercer argues that the one of ordinary skill in the art would need to evaluate “myriad possible techniques” for solving the problem of interrupt control. Defendants’ argument is based on a false premise – the law does not require such specificity. Indeed, the Federal Circuit has repeatedly rejected this very argument. Even if it were necessary to evaluate myriad techniques, the Federal Circuit has explained that where a specification identifies structure, it is not indefinite just because it does not disclose the particular circuitry or configuration of that structure. “By analogy, if a chair is disclosed in the specification that corresponds to the “means for seating” limitation in a claim, asserting that there are infinite numbers of structures that could make a chair or there are unlimited types of chairs in the world would not necessarily make the claim indefinite.” *Intel Corp. v. VIA Technologies, Inc.*, 319 F.3d 1357, 1367 (Fed. Cir. 2003).

In *Intel Corp.*, the Federal Circuit found that the disclosure of “core logic” was sufficient structure for a corresponding means plus function element, even though the specification did not disclose the particular logic or circuitry of the core logic. *Id.* at 1367. In that case, like here, the defendant argued that “the disclosure of the a generic core logic is an inadequate disclosure of structure because no circuitry is disclosed in the patent to show how the core logic is modified.” *Id.* at 1366. The Federal Circuit rejected that argument: “We hold that the ‘291 patent is not indefinite merely because no specific circuitry is disclosed to show the modification.” *Id.* Similarly, here, the fact that the “interrupt control unit” can take on multiple configurations does not mean that it is not sufficient structure. Just as there are multiple chairs and it would be a design choice as to which chair to choose in the Federal Circuit’s analogy, the fact that it is a design choice as to which particular interrupt control unit to choose does not mean that the claim

is indefinite. To the contrary, the law is clear that such a disclosure, when the details are unrelated to the novelty of the invention, is most definitely sufficient structure.

*Intel Corp.* is particularly applicable to the instant case because both relate primarily to hardware and both had patents that described some structure. *Cf. Encyclopaedia Britannica, Inc. v. Alpine Elecs. of Am., Inc.*, 2008 U.S. Dist. LEXIS 111989, 50-51 (W.D. Tex. Sept. 30, 2008) (distinguishing *Intel Corp.* and related cases on these bases). For example, in *Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1213 (Fed. Cir. 2003), the Court distinguished that case from *Intel Corp.* because the patent did not refer to any “structure at all” – the description of “image format conversion” referred to a step in the method, not structure. The panel in that case contrasted the box in figure 1 – a step in a method – with the boxes in two other figures “actually depicting structure.” Figure 2 of the patent depicting the preferred hardware of the invention and included blocks referring to hardware labeled “Computer Video Signal Processor” and “Central Processing Unit.” This is identical to the context of figure 3 in the Fielder 646 patent, which similarly describes the hardware elements of the system, including blocks referring to hardware labeled “CPU” and “Interrupt Control.” Dr. Mercer admitted that the block labeled “Interrupt Control” referred to hardware:

- Q. (BY MR. GIZA) Okay. So let's look first at Figure 3. The box labeled "Interrupt Control 104," in the context of Figure 3, does that indicate to you that it includes some sort of hardware?
- A. I think that -- yeah, **I think there's some hardware inside that box, and I think that it's connected to some hardware in the CPU, and -- and it's connected to some hardware in the interface unit. I think there's bound to be some hardware there.** I think so. I think there's a -- I can't think of a way that I could put anything in there without, for example, at the very least, wires. Because I know that CPUs get connected with wires, and I know I/O interfaces get connected with wires, and so something inside there has gotta be connected to those wires. When I was a kid, of course, I would have thought it was -- you know, I mean, if you were a kid and you listened to a radio, you thought there were little people in there talking, but not anymore.

Mercer Depo. (Giza Decl., Ex. A) at 98:14-99:7. The similar situation in *Intel Corp.* indicates that its analysis and conclusion that the claim was not indefinite should apply in the instant case.

Dr. Mercer also argues that the interrupt control is primarily functional. As discussed above, this is incorrect – at the very least, the context indicates hardware circuitry. But even if

one of ordinary skill would understand the interrupt control box as a function-type block diagram, the Federal Circuit has concluded that this disclosure of structure does not render a claim indefinite. *See, e.g., In re Ghiron*, 442 F.2d 985, 991 (C.C.P.A. 1971) (stating that "if such a selection would be 'well within the skill of persons skilled in the art', such functional-type block diagrams may be acceptable and, in fact, preferable if they serve in conjunction with the rest of the specification to enable a person skilled in the art to make such a selection and practice the claimed invention with only a reasonable degree of routine experimentation"). In this case, Defendants need to prove, by clear and convincing evidence, that the specification lacks adequate disclosure of structure to be understood by one skilled in the art as able to perform the recited functions. *Intel Corp. v. VIA Technologies, Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003). Defendants are not even close.<sup>4</sup> Instead, considering all the facts, the technology of the patent, the technology of the claim limitation, and the credibility of the parties' witnesses, the evidence weighs decisively in favor of the conclusion that the claims 12 and 26 are not invalid as indefinite.

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<sup>4</sup> Indeed, it appears that Dr. Mercer was confused about the clear and convincing standard of proof and misapplied it as "it's more likely than not that things are that way":

- Q. ... Is it your opinion that the evidence is clear and convincing that the 646 patents lacks sufficient structure corresponding to interrupt control means?  
[Objection]
- A. I think that's something that the Court determines. But I -- in this report that's due on the 15th, ***I did have to look up exactly what does it mean to be clear and convincing and that means it's more likely than not that things are that way***, as I understand what the clear and convincing standard is. It's obviously above preponderance and below beyond a reasonable doubt. But somehow it's, you know, more likely than not and I think it's definitely more likely than not that there's no structure in that limitation.

Mercer Depo. (Giza Decl., Ex. A) at 162:12-163:1.

**C. The Court Should Construe “Interrupt Control Means in Electrical Communication with Said I/O Interface Means for Issuing an Interrupt Signal Upon Receipt of Said Command Sequences” To Have Its Ordinary Meaning, or Alternatively To Mean “Hardware or Software That Issues a Signal To Interrupt the Operation of a Processor.”**

The Court should adopt the ordinary meaning of the claim phrase. As explained by Dr. Cantrell, “interrupt control” is term known to those of ordinary skill in the art and interrupt controllers that meet this limitation include commercially available integrated circuits. Accordingly, the ordinary meaning should apply.

If construction is deemed necessary, the phrase means “hardware or software that issues a signal to interrupt the operation of a processor.” This construction is fully supported by the claim language itself (“interrupt control means in electrical communication with said I/O interface means for issuing an interrupt signal upon receipt of said command sequences”) and the specification at 6:43-7:6 and 8:3-13 (describing the interrupt control unit 104 as issuing an interrupt to a processor (CPU), which in response “exits from a wait-state and executes a command interpreter program”) as understood by one of ordinary skill in the art.

If the Court decides that the claim phrase should be construed as a means-plus-function limitation under 35 U.S.C. §112, ¶ 6, then the Court should conclude that the recited function is “issuing an interrupt signal upon receipt of said command sequences” and the corresponding structure is the “interrupt control unit 104” and equivalents.

**V. CONCLUSION**

Claims 12 and 26 of the Fielder ’646 patent are not invalid for indefiniteness because the claim limitation “interrupt control means in electrical communication with said I/O interface means for issuing an interrupt signal upon receipt of said command sequences” is not a means-plus-function limitation under 35 U.S.C. §112, ¶ 6. The Court should adopt the ordinary meaning of the claim phrase, or if construction is deemed necessary, the phrase means “hardware or software that issues a signal to interrupt the operation of a processor.”

Alternatively if the challenged claim limitation is construed under §112, ¶ 6, there is no clear and convincing evidence that the specification's description of structure – the interrupt control unit – is insufficient for one of ordinary skill in the art to be able to determine the scope and coverage of the claim and link that structure with the recited function. The Court should construe the phrase to have the recited function of “issuing an interrupt signal upon receipt of command sequences” and the corresponding structure of “interrupt control unit 104” and equivalents.

Date: March 17, 2010

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify that the following counsel of record who are deemed to have consented to electronic service are being served on March 17, 2010, with a copy of this document via the Court's CM/ECF system. Any other counsel of record will be served by first class U.S. mail on this same date.

By: /s/ Alexander Giza  
Alexander Giza